

- 1) For Hydro power generation from Jemma River, the reservoir were designed by the institution of ELPHA, that was the elevation of the reservoir water surfaces is 1185 and the pond water surfaces downstream of power house is 1270m, the velocity of water exhausting in to the pond is 5m/s, and the discharge through the system is $2\text{m}^3/\text{s}$. Neglect the head loss due to the friction in the penstock?
- A) Calculate head loss due to the velocity?
 - B) Calculate the power produced by the turbine having 85% efficiency? $P_w = 9810\text{kN/m}^3$
 - C) Determine the amount of water stored in the reservoir when the discharge of the given flow is not released in one year?

2. From the give data draw the flow duration and power duration curve using grid paper

The following is the record of average yearly flow in the given River for 18 Years. The available head from the map shows that 36m Construct FDC and PDC for the river

No	Year	Flow(m/s)
1	2010	1006
2	2009	897
3	2008	1050
4	2007	675
5	2006	720
6	2005	690
7	2004	775
8	2003	590
9	2002	625
10	2001	810
11	2000	880
12	1999	1030
13	1998	1120
14	1997	960
15	1996	1200
16	1995	1004

17	1994	834
18	1993	765

3. Calculate the theoretical power potential from the above river using the minimum flow